Having thus defined the invention, the following is claimed:

1. An electric arc GMAW welder including a high speed switching power supply with a controller for creating a first or second weld process across the gap between a workpiece and a welding wire advanced toward said workpiece, said first process using a first current waveform, said second process using a second current waveform and a circuit for shifting between said first and second weld processes, said circuit including a counter for counting said waveforms in said first and second processes and a circuit to shift from the process being processed to the other weld process when said waveform count of said weld process being processed reaches a preselected number for such weld process.

2. An electric arc welder as defined in claim 1 wherein said first weld process is a low heat STT process.

3. An electric arc welder as defined in claim 2 wherein said second weld process is a high heat STT process.

4. An electric arc welder as defined in claim 1 wherein said second weld process is a high heat STT process.

5. An electric arc welder as defined in claim 1 wherein said first process is a high heat process and said second process is a low heat process.

6. An electric arc welder as defined in claim 1 wherein said first process is a pulse welding process.

7. An electric arc welder as defined in claim 6 wherein said second process is an STT process.

8. An electric arc welder as defined in claim 1 wherein said second process is a short-arc CV process.

9. An electric arc welder as defined in claim 1 wherein said first process is a CV spray process.

10. An electric arc welder as defined in claim 9 wherein said second process is a pulse welding process.

11. An electric arc welder as defined in claim 1 wherein said first process is a welding process with a closed power feedback loop.

12. An electric arc welder as defined in claim 11 wherein said second process is a pulse welding process.

13. An electric arc welder as defined in claim 1 wherein said first process is a high heat process.

14. An electric arc welder as defined in claim 13 wherein said second process is a low heat process.

15. An electric arc welder as defined in claim 1 wherein said second process is a low heat process.

16. An electric arc welder as defined in claim 1 wherein said first process is an electrode positive process and said second process is an electrode negative process.

17. An electric arc welder as defined in claim 16 wherein said preselected number is essentially the same during both said first and second processes.

18. An electric arc welder as defined in claim 14 wherein said preselected number is essentially the same during both said first and second processes.

19. An electric arc welder as defined in claim 7 wherein said preselected number is essentially the same during both said first and second processes.

20. An electric arc welder including a high speed switching power supply with a controller for creating a pulse wave weld process and a STT weld process, a circuit activated to create a short signal when the arc voltage is below a value indicative of a short and a switch to shift said controller from said pulse wave process to said STT process by a process shift signal created upon creation of said short signal.

21. An electric arc welder as defined in claim 20 including a timer to create said shift signal only when said short signal is held for a given time.

22. An electric arc welder as defined in claim 21 wherein said time is generally greater than 1.0 ms.

23. An electric arc welder as defined in claim 21 wherein said time is greater than a set time in the general range of 0.2 to 0.5 ms.

24. An electric arc welder including a high speed switching power supply with a controller for creating a pulse wave weld process and a weld process to clear a short, a circuit activated to create a short signal when the arc voltage is below a value indicative of a short and a switch to shift said controller from said pulse wave process to said short clearing process by a process shift signal created upon creation of said short signal.

25. An electric arc welder as defined in claim 24 including a timer to create said shift signal only when said short signal is held for a given time.

26. An electric arc welder as defined in claim 24 wherein said time is generally greater than 1.0 ms.

27. An electric arc welder as defined in claim 24 wherein said time is greater than a set time in the general range of 0.2 to 0.5 ms.

28. A method of operating an electric arc GMAW welder including a high speed switching power supply with a controller for creating a first or second weld process across the gap between a workpiece and a welding wire advanced toward said workpiece by a wire feeder, said first process using a first current waveform, said second process using a second current waveform, said method comprising:

(a) shifting between said first and second weld processes;

(b) counting said waveforms in said first and second processes; and,

(c) shifting from the process being processed to the other weld process when said waveform count of said weld process being processed reaches a preselected number for such weld process.

29. A method as defined in claim 28 wherein said first weld process is a low heat STT process.

30. A method as defined in claim 29 wherein said second weld process is a high heat STT process.

31 A method as defined in claim 28 wherein said second weld process is a high heat STT process.

32. A method as defined in claim 28 wherein said first process is a high heat process and said second process is a low heat process.

33. A method as defined in claim 28 wherein said first process is a pulse welding process.

34. A method as defined in claim 33 wherein said second process is an STT process.

35. A method as defined in claim 28 wherein said second process is a short-arc CV process.

36. A method as defined in claim 28 wherein said first process is a CV spray process.

37. A method as defined in claim 36 wherein said second process is a pulse welding process.

38. A method as defined in claim 28 wherein said first process is a welding process with a closed power feedback loop.

39. A method as defined in claim 38 wherein said second process is a pulse welding process.

40. A method as defined in claim 28 wherein said first process is a high heat process.

41. A method as defined in claim 40 wherein said second process is a low heat process.

42. A method as defined in claim 28 wherein said second process is a low heat process.

43. A method as defined in claim 28 wherein said first process is an electrode positive process and said second process is an electrode negative process.

44. A method as defined in claim 43 wherein said preselected number is essentially the same during both said first and second processes.

45. A method as defined in claim 41 wherein said preselected number is essentially the same during both said first and second processes.

46. A method as defined in claim 34 wherein said preselected number is essentially the same during both said first and second processes.

47. A method of operating an electric arc welder including a high speed switching power supply with a controller for creating a pulse wave weld process and a short clearing weld process, said method comprising:

(a) creating a short signal when the arc voltage is below a value indicative of a short; and,

(b) shifting said controller from said pulse wave process to said short clearing process by a process shift signal created upon creation of said short signal.

48. A method as defined in claim 47 including:

(c) creating said shift signal only when said short signal is held for a given time.

49. A method as defined in claim 48 wherein said time is generally greater than 1.0 ms.

50. A method as defined in claim 48 wherein said time is greater than a set time in the general range of 0.2 to 0.5 ms.

51. A method as defined in claim 50 wherein said short clearing process is the STT process.

52. A method as defined in claim 49 wherein said short clearing process is the STT process.

53. A method as defined in claim 48 wherein said short clearing process is the STT process.

54. A method as defined in claim 47 wherein said short clearing process is the STT process.

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